



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,098	12/31/2003	Harpal Mann	134158	1335
75930	7590	03/03/2009	EXAMINER	
GARLICK, HARRISON & MARKISON (ALU)	P.O. BOX 160727	AUSTIN, TX 78716-0727	NGO, NGUYEN HOANG	
			ART UNIT	PAPER NUMBER
			2416	
			MAIL DATE	DELIVERY MODE
			03/03/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/751,098	MANN ET AL.	
	Examiner	Art Unit	
	NGUYEN NGO	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 November 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 2-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 2-22 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____ .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Response to Amendment

This communication is in response to the amendment of 11/19/2008. All changes made to the Claims have been entered. Accordingly, Claims 2-22 are currently pending in the application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2-5, 7-18, and 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Sugihara (US 6785272), hereinafter referred to as Sugihara.

Regarding claim 2, Sugihara discloses a method to provide for fail-safe operation in a system of stack switches (intelligent stacked switching system, abstract), the method comprising;

3. assigning a primary centralized management module (CMM) (master switch having management functions among the unit, col5 lines 1-11) and a secondary (slave

switch with next priority) CMM (setting the priority index of each unit, the master-slave designation will be assigned based on the priority indexes during initial boot up, col6 lines 19-25)

assigning a unique identifier to each of a plurality of stack switches, the identifiers specifying a management hierarchy of the respective switches (designating priority index of each unit, the master-slave designation will be assigned based on the designated priority indexes, col6 lines 19-24);

assigning one or more stack management functions to a first stack switch of the plurality of stack switches, the first stack switch being the first in the management hierarchy of the plurality of stack switches (the master unit is assigned the highest priority index among all connected switch units and the master unit is responsible for performing stacking management functions, col4 lines 31-49 and col5 lines 1-10);

assigning a second stack switch (unit 2 having the second highest priority number and thus first slave unit, col7 lines 45-60) of the plurality of stack switches (unit 2 of figure 4) to provide redundancy to said first stack switch, the second stack switch being the second in the management hierarchy of the plurality of stack switches (Unit 2 420 has the highest priority assignment among all the remaining units, Unit 2 420 will take over as the new master (previous master being down) thus providing redundancy, col8 lines 25-40 and figure 4);

if the first stack switch is unable to execute the one or more stack management functions (being down), automatically assigning said one or more management functions to the second stack switch of the plurality of stack switches (one of the units

can take over as the new master unit when the current master unit is down based upon next highest priority assignment among all remaining units, col8 lines 21-34); and

assigning a third stack switch (unit 3 which is the second slave unit which has the third highest priority number, col7 lines 45-58) of the plurality of stack switches to provide redundancy to said second stack switch (when the master unit is down, a new determination is required among all the remaining slave units to find out which one of them is the new master unit, col12 lines 54-58), the third stack switch being the third in the management hierarchy of the plurality of stack switches (third highest priority number).

Regarding claim 12, Sugihara discloses a stack switch in a plurality of stack switches adapted to provide for fail-safe operation (redundancy purposes, col8 lines 4-45), the stack switch comprising:

a plurality of ports comprising at least one stack port operatively coupling the stack switch to the plurality of stack switches (seen from figure 1-4); and

a centralized management module (CMM) associated with a unique identifier (designates priority index of each unit (switches), col6 lines 19-34 and col9 lines15-23);

wherein the CMM is adapted to perform one or more stack switch management functions in response to the stack switch becoming first in the management hierarchy of the plurality of stack switches (one of the units can take over as the new master unit when the current master unit is down based upon next highest priority assignment

among all remaining units wherein the master unit is responsible for performing stacking management functions among all the units, col8 lines 21-34 and col5 lines 1-10);

wherein the CMM is adapted to perform one or more secondary stack switch management functions in response to the stack switch becoming second in the management hierarchy of the plurality of stack switches (one of the units can take over as the new master unit when the current master unit is down based upon next highest priority assignment among all remaining units, col8 lines 21-34). Examiner correlates secondary stack management functions to a first slave (switch with second highest priority number) unit providing redundancy to the master unit wherein the first slave unit will be responsible for performing stacking management functions when the master unit is down. and

wherein the CMM is adapted to remain idle when not first or second in the management hierarchy of the plurality of switches (second slave unit with third highest priority number thus the second slave unit does not provide redundancy (is idle) until the first slave unit becomes master due to the current master unit being down, and thus transferring the second slave unit to a first slave unit with the second highest priority, col7 lines 45-60).

Regarding claim 21, Sugihara discloses a system of stack switches operatively linked via a full duplex ring, the system adapted to provide for fail-safe operation (intelligent stacked switching system, abstract), the system comprising:

three or more stack switches (seen from figures 3 and 4), each stack switch having a configuration management module (CMM), wherein each stack switch is associated with a stack switch identifier indicating the management hierarchy of the respective stack switch with respect to the three or more stack switches(designating priority index of each unit, the master-slave designation will be assigned based on the designated priority indexes, col6 lines 19-24);

wherein the CMM of each of the three or more stack switches is adapted, if first in the management hierarchy (master unit) of the three or more of stack switches, to:

solicit configuration information updates from each of the other three or more stack switch (alive messages from slave units, col12 lines 25-35), and

transmit said configuration information from each of the other three or more stack switch to each of the other three or more stack switches (the master downloads the configuration data to each of the slave units, col11 lines 53-66); and

wherein each of the three or more stack switches is adapted to be first in the management hierarchy if there none of the three or more stack switches is higher in the management hierarchy is operational (Unit 2 420 has the highest priority assignment among all the remaining units, Unit 2 420 will take over as the new master (previous master being down) thus providing redundancy, col8 lines 25-40 and figure 4); and

wherein the CMM of each of the three or more stack switches is adapted, if second in the management hierarchy of the three or more of stack switches, to perform one or more secondary stack switch management functions (one of the units can take

over as the new master unit when the current master unit is down based upon next highest priority assignment among all remaining units, col8 lines 21-34). Examiner correlates secondary stack management functions to a first slave (switch with second highest priority number) unit providing redundancy to the master unit wherein the first slave unit will be responsible for performing stacking management functions when the master unit is down.

Regarding claim 3, 13, Sugihara discloses the method of claim 2, wherein the stack management functions comprise synchronizing one or more databases maintained by one or more of the plurality of stack switches (master unit is responsible for creating, maintaining and updating the controlling topology among all the units, col5 lines 1-15).

Regarding claim 4, 14, 22, Sugihara discloses the method of claim 3, wherein the one or more databases comprise topology information for the plurality of stack switches (col5 lines 1-15).

Regarding claim 5, Sugihara discloses the method of claim 4, wherein the topology information comprises addresses of substantially all nodes reachable through a port of any switch of the plurality of stack switch (col5 lines 15-26).

Regarding claim 7, Sugihara discloses the method of claim 2, wherein the unique

identifiers of the plurality of stack switches are consecutively numbered integers (col7 lines 45-60).

Regarding claim 8, Sugihara discloses the method of claim 2, wherein the plurality of stack switches comprise local area network (LAN) switches (col2 lines 53-57).

Regarding claim 9, Sugihara discloses the method of claim 2, wherein the plurality of stack switches are operatively coupled via communications links forming a full duplex ring (col1 lines 29-32 and figure 1).

Regarding claim 10, Sugihara discloses the method of claim 2, wherein the first stack switch is unable to execute the one or more stack management functions because of a communications link failure within the full duplex ring (master unit being down due to link failure, col8 lines 29-31).

Regarding claim 11, Sugihara discloses the method of claim 2, wherein the unique identifiers further serve as stack switch identifiers (col13 lines 5-30).

Regarding claim 15, Sugihara discloses the stack switch of claim 13, wherein said managed information is selected from the group consisting of: media access control (MAC) address tables, routing tables, resolution protocol (ARP) tables, virtual local area

network (VLAN) membership tables, access control list (ACL) rules, multicast groups membership tables, link aggregation ports, or a combination thereof (col5 lines16-27).

Regarding claim 16, Sugihara discloses the stack switch of claim 12, wherein the stack switch further comprises a stack manager adapted, in response to the stack switch becoming first in the management hierarchy of the plurality of stack switches, to:

discover a topology of the plurality of stack switches (topology discoveries, col5 lines 20-23); and

generate a shortest path between each pair of stack switches of the plurality of stack switches (col11 lines59-66).

Regarding claim 17, Sugihara discloses the stack switch of claim 16, wherein the stack manager is further adapted, if and when the stack switch becomes first in the management hierarchy of the plurality of stack switches, to detect the insertion or removal of a stack switch of the plurality of stack switches (addition or deletion of unit in the system, col6 lines 60-67).

Regarding claim 18, Sugihara discloses the stack switch of claim 16, wherein the stack switch is further adapted to exchange keep-alive messages with a primary stack switch of the plurality of stack switches to determine if and when the stack switch becomes first in the management hierarchy of the plurality of stack switches (alive messages, col10 lines 4-29 and col12 lines 16-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 6, 19, 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugihara (US6785272), in view of Olson et al. (US 7127633), hereinafter referred to as Sugihara and Olson.

Regarding claim 6, Sugihara fails to specifically disclose wherein the addresses of the nodes are media access control (MAC) addresses. However MAC addresses are well known in the art and it would have been obvious to use MAC addresses in the stacked switching system of Sugihara in order to efficiently route data throughout the system with the use of MAC addresses.

Regarding claims 19, 20, Sugihara fails to specifically disclose wherein the switch further comprises a chassis supervisor adapted to inform one or more of the plurality of stack switches of the management hierarchy if and when the stack switch becomes first in the management hierarchy of the plurality of stack switches and wherein an IPC protocol is employed by the chassis supervisor. Sugihara however discloses of an election process between the stack switches which is referred to as an “auto-topology” design (col6 lines 24-34), thus providing the motivation to inform the other slave units of the outcome of the election process. Olson further discloses of the concept of having a master controller that then contacts the slave controllers to inform them of the election outcome (col28 lines 54-57). It would have thus been obvious to a person skilled in the art to incorporate some sort of chassis supervisor to inform the other units/switches of the outcome of a master election process as disclosed by Olson into the intelligent stacked switching system of Sugihara in order to efficiently determine and inform the switches of the elected master switch. It should be further obvious to use some sort of protocol (such as IPC protocol) to inform the other switches in order to correctly communicate the outcome between the switches in the system.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGUYEN NGO whose telephone number is (571)272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on (571)272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2416

Nguyen Ngo
United States Patent & Trademark Office
Patent Examiner AU 2614
(571) 272-8398
/N. N./
Examiner, Art Unit 2416